03060101-040

(Seneca River/Lake Hartwell)

General Description

Watershed 03060101-040 is located in Oconee, Pickens, and Anderson Counties and consists primarily of the ***Seneca River arm of Lake Hartwell***. The watershed occupies 114,780 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Hiwassee series. The erodibility of the soil (K) averages 0.26, and the slope of the terrain averages 11%, with a range of 2-25%. Land use/land cover in the watershed includes: 56.8% forested land, 18.8% agricultural land, 13.7% water, 9.5% urban land, 1.0% forested wetland, 0.1% nonforested wetland, and 0.1% barren land.

The Keowee River flows out of the Keowee Dam and accepts drainage from Fourmile Creek, the Little River (flowing out of the Little River Dam), and Sixmile Creek (Wildcat Creek, Lake Issaqueena) before merging with the Twelvemile Creek watershed to form the Seneca River. Downstream of the confluence, the Seneca River accepts drainage from Seneca Creek, Shiloh Branch, Martin Creek, the Coneross Creek watershed, Camp Creek, the Eighteenmile Creek watershed, and Six and Twenty Creek. Six and Twenty Creek accepts drainage from Jones Creek, Town Creek, Hembree Creek, Hurricane Creek, Steel Creek, Salem Creek, Prichards Branch before merging with the Three and Twenty Creek watershed to form Deep Creek, which drains into the Seneca River. At the base of the watershed, the Seneca River joins with the Tugaloo River watershed to form the Savannah River watershed. There are a total of 138.0 stream miles and 16,628.2 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
SV-249	P	FW	LAKE HARTWELL HEADWATERS, KEOWEE RIVER ARM AT SC 183
SV-205	W/BIO	FW	SIXMILE CREEK AT S-39-160
SV-683	BIO	FW	WILDCAT CREEK AT CLEMSON UNIV. REC. AREA OFF SC 133
SV-360	W	FW	LAKE ISSAQUEENA, FOREBAY EQUIDISTANT FROM DAM AND SHORELINE
SV-106	S	FW	MARTIN CREEK ARM OF LAKE HARTWELL AT S-37-65 N OF CLEMSON
SV-288	P	FW	L. HARTWELL, SENECA R. ARM AT USACE BUOY BETW MRKRS S-28A & S-29
SV-180	BIO	FW	SIX AND TWENTY CREEK AT S-04-174
SV-181	S	FW	SIX AND TWENTY CREEK AT S-04-29, 8.2 MI SE OF PENDLETON
SV-339	P	FW	LAKE HARTWELL, SENECA R. ARM AT USACE BUOY BETW MRKRS S-14 & S-15

Sixmile Creek (SV-205) – Aquatic life uses are fully supported based on macroinvertebrate community, physical, and chemical data. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Wildcat Creek (SV-683) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Lake Issaqueena (SV-360) - Aquatic life and recreational uses are fully supported. Although pH excursions occurred, due to the small number of samples, aquatic life uses are considered to be fully

supported.

Six and Twenty Creek – There are two monitoring sites along Six and Twenty Creek. Aquatic life uses are fully supported at the upstream site ***(SV-180)*** based on macroinvertebrate community data. At the downstream site ***(SV-181),*** aquatic uses are also fully supported; however, there are significant increasing trends in turbidity and total phosphorus concentrations. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Lake Hartwell - There are four monitoring sites along Lake Hartwell in this watershed. Recreational uses are fully supported **at all sites,** and significant decreasing trends in fecal coliform bacteria concentration suggest improving conditions for this parameter.

Aquatic life uses are fully supported at the Keowee River site ***(SV-249)***; however, there is a significant decreasing trend in dissolved oxygen concentration. Significant decreasing trends in five-day biological oxygen demand, turbidity, and total nitrogen concentration suggest improving conditions for these parameters. Aquatic life uses are also fully supported at the Martin Creek arm site ***(SV-106)***. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter.

Further downlake in the Seneca River arm ***(SV-288)***, aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentration suggest improving conditions for these parameters. In sediments, a high concentration of copper was detected in 1997 & 1999 samples. A high concentration of lead was also detected in the 1997 sample. Very high concentrations of chromium, lead, and zinc were detected in the 1999 sample. P,P'DDD and P,P'DDE, both metabolites of DDT, were detected in the 1999 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. PCB 1248 was detected in the 1999 sediment sample. PCB 1254 was detected in the 1996 and 1999 sediment samples. Although the manufacture and use of PCBs was banned in 1979, they are also very persistent in the environment.

At the furthest downlake site in the Seneca River arm, near the confluence with Six and Twenty Creek ***(SV-339),*** aquatic life uses are also fully supported; however, there are significant increasing trends in pH and total phosphorus concentration. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentration suggest improving conditions for these parameters.

Natural Swimming Areas

FACILITY NAME ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
DARWIN WRIGHT SIX AND TWENTY CREEK	04-N09 ACTIVE
FOOTHILLS YMCA LAKE HARTWELL	37-N07 ACTIVE

A fish consumption advisory has been issued by the Department for PCBs (Polychlorinated biphenols) and includes Lake Hartwell and the Seneca River arm of Lake Hartwell within this watershed (see advisory p.37).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
KEOWEE RIVER TRIBUTARY DUKE POWER/OCONEE NUCLEAR PIPE #:002 FLOW: 3.7	SC0000515 MAJOR INDUSTRIAL
KEOWEE RIVER (INTERNAL) DUKE POWER/OCONEE NUCLEAR PIPE #:003 FLOW: 0.057 PIPE #:005 FLOW: 0.0 PIPE #:006 FLOW: 0.005	SC0000515 MAJOR INDUSTRIAL
KEOWEE RIVER TAILRACE DUKE POWER/OCONEE NUCLEAR PIPE #:004 FLOW: 2.9	SC0000515 MAJOR INDUSTRIAL
LAKE HARTWELL WESTPOINT STEVENS/CLEMSON PLT PIPE #: 001 FLOW: 1.9 (TIER I) PIPE #: 001 FLOW: 2.3 (TIER I)	SC0000591 MAJOR INDUSTRIAL
LAKE HARTWELL CLEMSON UNIVERSITY WWTP PIPE #: 001 FLOW: 1.8	SC0034843 MAJOR DOMESTIC
LAKE HARTWELL HARBOR GATE CONDOMINIUMS PIPE #: 001 FLOW: 0.0375	SC0021849 MINOR DOMESTIC
LAKE HARTWELL MILLIKEN & CO./DEFORE PLT PIPE #: 001 FLOW: 0.001	SC0023353 MINOR INDUSTRIAL
LAKE HARTWELL SHOALS SEWER CO. PIPE #: 001 FLOW: 0.04	SC0021873 MINOR DOMESTIC
LAKE HARTWELL CLEMSON UNIVERSITY/CENTRAL ENERGY PIPE #: 001 FLOW: 14.11	SC0022004 MINOR INDUSTRIAL
LAKE HARTWELL TRIBUTARY ECONOMY LODGE WWTP PIPE #: 001 FLOW: 0.025	SC0023311 MINOR DOMESTIC

LAKE HARTWELL TRIBUTARY CLEMSON UNIVERSITY/COOPER SER.LAB. PIPE #: 001 FLOW: 0.001	SC0036200 MINOR INDUSTRIAL
SALEM CREEK SPRINGS IND./WAMSUTTA PLT PIPE #: 001,01A FLOW: M/R	SCG250008 MINOR INDUSTRIAL
SIX AND TWENTY CREEK ANDERSON CO. SEWER AUTH. PIPE #: 001 FLOW: 0.5	SC0040193 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
WHITE LAND CLEARING C & D	372649-1701 ACTIVE
JP STEVENS & CO.- DELTA #1 INDUSTRIAL	373317-1601 (IWP-104) --------
BAD LONG TERM C&D LANDFILL C & D	042629-1201 (042902-1301) INACTIVE
WEDGEWOOD LC&D , YARD TRASH	042485-1701 INACTIVE
MCCLELLION/MEEHAN ST C & D	042477-1301 INACTIVE
CLEMSON UNIVERSITY LONG TERM C & D, LCD	041804-1202 ACTIVE
DUKE POWER-BAD CREEK INDUSTRIAL	IWP-294; IWP-234 ACTIVE

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
WILLIAM R.P. WILSON WILSON BORROW PIT	1091-73 CLAY

Water Quantity

WATER USER ***STREAM***	***TOTAL PUMP. CAPACITY (MGD)*** ***RATED PUMP. CAPACITY (MGD)***
ANDERSON REGIONAL SIX AND TWENTY CREEK	43.0 26.5

Growth Potential

There is a moderate to high potential for growth in this watershed, which contains portions of the Town of Six Mile and the Cities of Clemson and Anderson. Residential growth should occur along S.C. Hwy 133 from Clemson to Six Mile. Another growth area surrounds the intersection of I-85 and S.C. Hwy 81, near Six and Twenty Creek. The presence of I-85 and four-lane U.S. Hwy 76 to the west of Anderson are attracting industrial growth. Clemson is one of the largest manufacturing areas in the upstate region. Future growth of the manufacturing industry is dependent on infrastructure expansion, which is dependent on the capacity of existing facilities to treat the effluent, and on the assimilative capacity of surrounding streams to absorb the effluent. Several wastewater treatment facilities in the area have been expanded and are able to serve expanding industrial growth.